Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) An artificial interbody spinal implant for insertion at least in part across the surgically corrected height of a disc space between adjacent vertebral bodies of a human spine, the vertebral bodies having an anterior aspect and a posterior aspect, said implant comprising:

a leading end for insertion first into the disc space, a trailing end opposite said leading end, and therebetween a length along a mid-longitudinal axis of said implant, said leading end being asymmetrical;

opposed portions between said leading and trailing ends adapted to be placed within the disc space to contact and support the adjacent vertebral bodies, said opposed portions being non-arcuate along at least a portion of the length of said implant, each of said opposed portions having at least one opening therein to permit for the growth of bone from adjacent vertebral body to adjacent vertebral body through said implant, said implant being formed at least in part of a material other than bone, said material comprising at least one of surgical quality titanium and its alloys, cobalt chrome alloy, tantalum, any metal or alloy suitable for the intended purpose, any ceramic material suitable for the intended purpose, and any plastic or composite material suitable for the intended purpose;

an interior facing side wall, an exterior facing side wall opposite said interior facing side wall, and a width therebetween, said interior and exterior facing side walls extending between said opposed portions and having an inner surface facing each other, said exterior facing side wall including a straight portion along the length of said implant, said width of said implant being less than approximately one-half of the maximum width of the adjacent vertebral

bodies into which said implant is adapted to be inserted, said interior and exterior facing side walls being between said opposed portions and said leading and trailing ends, said interior facing side wall adapted to be oriented toward another implant when inserted within the disc space, each of said opposed portions having a vertebral body contacting surface between said at least one opening and at least one of said interior side wall and said exterior side wall, each of said vertebral body contacting surfaces being adapted to be placed toward one of the adjacent vertebral bodies, said opposed portions being spaced apart and said inner surfaces of said interior and exterior facing side walls being spaced apart to define a hollow interior in communication with said openings, each of said at least one openings of said opposed portions having a mid-longitudinal axis and a maximum dimension in a plane perpendicular to the mid-longitudinal axis of each of said openings, said hollow interior having a maximum dimension between said inner surfaces of said interior and exterior facing side walls and in a plane perpendicular to the mid-longitudinal axis of said openings greater than said maximum dimension of said opening;

a first distance as measured along the mid-longitudinal axis of said implant from an intersection of said leading end and the mid-longitudinal axis of said implant to an intersection of the mid-longitudinal axis of said implant and a plane perpendicular to and bisecting the length along the mid-longitudinal axis of said implant, the first distance being greater than a second distance as measured along the mid-longitudinal axis of said implant from an intersection of said perpendicular plane and said exterior side wall to a junction of said leading end and said exterior side wall; and

a third distance as measured along the mid-longitudinal axis of said implant from a junction of said leading end and said interior side wall to an intersection of said interior side wall and said perpendicular plane, the third distance being greater than said second distance, said leading end including a curved portion extending from the junction of said leading end and said exterior

side wall to at least the intersection of said leading end and the mid-longitudinal axis of said implant.

2. (original) The implant of claim 1, wherein said first distance is greater than said third distance.
3. (withdrawn) The implant of claim 1, wherein said first distance is less than said third distance.
4. (original) The implant of claim 1, wherein said first distance and said third distance are approximately equal.
5. (original) The implant of claim 1, wherein said third distance is substantially greater than said first distance.
6. (original) The implant of claim 1, wherein said leading end is at least in part non-linear.
7. (previously presented) The implant of claim 1, wherein at least a portion of said leading end is tapered from opposed portion to opposed portion for facilitating insertion of said implant between the two adjacent vertebral bodies.
8. (original) The implant of claim 1, wherein less than half of said leading end is along a line perpendicular to the mid-longitudinal axis of said implant in a plane dividing said implant into an upper half and a lower half.

Claims 9 and 10 (cancelled).

11. (original) The implant of claim 1, further comprising at least one protrusion extending from at least one of said opposed portions for engaging at least one of the adjacent vertebral bodies to maintain said implant within the disc space.
12. (original) The implant of claim 11, wherein said protrusion comprises a ridge.
13. (original) The implant of claim 1, further comprising a plurality of surface roughenings for engaging the adjacent vertebral bodies and for maintaining said implant in place, said surface roughenings being present on at least a part of said opposed portions.
14. (original) The implant of claim 1, wherein said opposed portions have a porous surface.

15. (original) The implant of claim 1, wherein said opposed portions have a bone ingrowth surface.
16. (original) The implant of claim 1, wherein said implant has surface protrusions configured to protrude into bone.
17. (original) The implant of claim 1, wherein said implant material is porous.
18. (original) The implant of claim 1, in combination with a fusion promoting material other than bone.
19. (original) The implant of claim 1, wherein said implant comprises a bone ingrowth material other than bone.
20. (original) The implant of claim 1, further comprising a material that intrinsically participates in the growth of bone from one of the adjacent vertebral bodies to the other of the adjacent vertebral bodies.
21. (original) The implant of claim 1, wherein said implant is treated with a fusion promoting substance.
22. (original) The implant of claim 21, wherein said fusion promoting substance is bone morphogenetic protein.
23. (original) The implant of claim 1, wherein said implant material is stronger than cancellous bone.
24. (original) The implant of claim 1, wherein said implant material is stronger than cortical bone.
25. (original) The implant of claim 1, wherein at least a portion of said implant is bioresorbable.
26. (original) The implant of claim 1, further in combination with bone morphogenetic protein.
27. (original) The implant of claim 1, further in combination with an osteogenic material.
28. (original) The implant of claim 27, wherein said osteogenic material is a material other than bone.

29. (original) The implant of claim 27, wherein said material is genetic material coding for the production of bone.

30. (original) The implant of claim 27, wherein said material is bone morphogenetic protein.

31. (original) The implant of claim 1, further in combination with genetic material coding for production of bone.

32. (original) The implant of claim 1, wherein said implant has a maximum length less than and approximating the posterior to anterior depth of the vertebral body.

33. (previously presented) The implant of claim 1, wherein said trailing end is adapted to conform from side to side to at least a portion of the peripheral contour of at least one of the anterior and posterior aspects of the vertebral bodies adjacent a disc space into which said implant is inserted.

34. (previously presented) The implant of claim 1, wherein said opposed portions have at least two openings therein.

Claim 35 (cancelled).

36. (original) The implant of claim 1, wherein at least a portion of said opposed portions are in a diverging relationship to each other from trailing end to leading end for allowing angulation of the adjacent vertebral bodies relative to each other.

37. (original) The implant of claim 1, wherein at least a portion of said opposed portions are generally in a converging relationship to each other from trailing end to leading end for allowing angulation of the adjacent vertebral bodies relative to each other.

38. (original) The implant of claim 1, further comprising a plurality of openings and passages for retaining fusion promoting substance.

Claim 39 (cancelled).

40. (original) The implant of claim 1, wherein said implant is adapted for insertion from the posterior aspect of the vertebral bodies and said leading end is

configured to conform to the anatomic contour of at least a portion of the anterior aspect of the vertebral bodies.

41. (original) The implant of claim 1, wherein said implant is adapted for insertion from the anterior aspect of the vertebral bodies and said leading end is configured to conform to the anatomic contour of at least a portion of the posterior aspect of the vertebral bodies.

42. (original) The implant of claim 1, wherein said implant is adapted for insertion from a first lateral aspect of the vertebral bodies and said leading end is configured to conform to the anatomic contour of at least a portion of a second lateral aspect of the vertebral bodies opposite the first lateral aspect.

Claims 43-100 (cancelled).

101. (previously presented) The implant of claim 1, further in combination with hydroxyapatite.

102. (currently amended) An artificial interbody spinal implant for insertion at least in part across the surgically corrected height of a disc space between adjacent vertebral bodies of a human spine, the vertebral bodies having an anterior aspect and a posterior aspect, said implant comprising:

a leading end for insertion first into the disc space, a trailing end opposite said leading end, and therebetween a length along a mid-longitudinal axis of said implant, said leading end being asymmetrical;

opposed portions between said leading and trailing ends adapted to be placed within the disc space to contact and support the adjacent vertebral bodies, said opposed portions being non-arcuate along at least a portion of the length of said implant, said implant being formed at least in part of a material other than bone, said material comprising at least one of surgical quality titanium and its alloys, cobalt chrome alloy, tantalum, any metal or alloy suitable for the intended purpose, any ceramic material suitable for the intended purpose, and any plastic or composite material suitable for the intended purpose, said opposed portions having at least one opening therein, said openings being in

communication with one another to permit for the growth of bone from adjacent vertebral body to adjacent vertebral body through said implant;

an interior facing side wall, an exterior facing side wall opposite said interior side wall, and a width therebetween, said interior and exterior facing side walls extending between said opposed portions, said width of said implant being less than approximately one-half of the maximum width of the adjacent vertebral bodies into which said implant is adapted to be inserted, said interior and exterior side walls being between said opposed portions and said leading and trailing ends, said interior side wall adapted to be oriented toward another implant when inserted within the disc space, said exterior facing side wall including a straight portion along the length of said implant;

a first distance as measured along the mid-longitudinal axis of said implant from an intersection of said leading end and the mid-longitudinal axis of said implant to an intersection of the mid-longitudinal axis of said implant and a plane perpendicular to and bisecting the length along the mid-longitudinal axis of said implant, the first distance being greater than a second distance as measured along the mid-longitudinal axis of said implant from an intersection of said perpendicular plane and said exterior side wall to a junction of said leading end and said exterior side wall; and

a third distance as measured along the mid-longitudinal axis of said implant from a junction of said leading end and said interior side wall to an intersection of said interior side wall and said perpendicular plane, the third distance being greater than said second distance, said leading end including a curved portion extending from the junction of said leading end and said exterior side wall to at least the intersection of said leading end and the mid-longitudinal axis of said implant.

103. (previously presented) The implant of claim 102, wherein said leading end is at least in part non-linear.

104. (previously presented) The implant of claim 102, wherein at least a portion of said leading end is tapered from opposed portion to opposed portion for facilitating insertion of the implant between the two adjacent vertebral bodies.

105. (previously presented) The implant of claim 102, wherein less than half of said leading end is along a line perpendicular to the mid-longitudinal axis of said implant in a plane dividing said implant into an upper half and a lower half.

106. (previously presented) The implant of claim 102, wherein more than half of said leading end is a curve that extends from said exterior side wall toward the mid-longitudinal axis of said implant in a plane dividing said implant into an upper half and a lower half.

107. (previously presented) The implant of claim 102, wherein said leading end includes a curve that extends from said exterior side wall beyond the mid-longitudinal axis of said implant.

108. (previously presented) The implant of claim 102, further comprising at least one protrusion extending from at least one of said opposed portions for engaging at least one of the adjacent vertebral bodies to maintain said implant within the disc space.

109. (previously presented) The implant of claim 108, wherein said protrusion comprises a ridge.

110. (previously presented) The implant of claim 102, further comprising a plurality of surface roughenings for engaging the adjacent vertebral bodies and for maintaining said implant in place, said surface roughenings being present on at least a part of said opposed portions.

111. (previously presented) The implant of claim 102, wherein said opposed portions have a porous surface.

112. (previously presented) The implant of claim 102, wherein said opposed portions have a bone ingrowth surface.

113. (previously presented) The implant of claim 102, wherein said implant has surface protrusions configured to protrude into bone.

114. (previously presented) The implant of claim 102, wherein said implant material is porous.

115. (previously presented) The implant of claim 102, in combination with a fusion promoting material other than bone.

116. (previously presented) The implant of claim 102, wherein said implant comprises a bone ingrowth material other than bone.

117. (previously presented) The implant of claim 102, further comprising a material that intrinsically participates in the growth of bone from one of the adjacent vertebral bodies to the other of the adjacent vertebral bodies.

118. (previously presented) The implant of claim 102, wherein said implant is treated with a fusion promoting substance.

119. (previously presented) The implant of claim 118, wherein said fusion promoting substance is bone morphogenetic protein.

120. (previously presented) The implant of claim 102, wherein said implant material is stronger than cancellous bone.

121. (previously presented) The implant of claim 102, wherein said implant material is stronger than cortical bone.

122. (previously presented) The implant of claim 102, wherein at least a portion of said implant is bioresorbable.

123. (previously presented) The implant of claim 102, further in combination with bone morphogenetic protein.

124. (previously presented) The implant of claim 102, further in combination with an osteogenic material.

125. (previously presented) The implant of claim 124, wherein said osteogenic material is a material other than bone.

126. (previously presented) The implant of claim 124, wherein said material is genetic material coding for the production of bone.

127. (previously presented) The implant of claim 124, wherein said material is bone morphogenetic protein.

128. (previously presented) The implant of claim 102, further in combination with genetic material coding for production of bone.

129. (previously presented) The implant of claim 102, wherein said implant has a maximum length less than and approximating the posterior to anterior depth of the vertebral body.

130. (previously presented) The implant of claim 102, wherein said trailing end is adapted to conform from side to side to at least a portion of the peripheral contour of at least one of the anterior and posterior aspects of the vertebral bodies adjacent a disc space into which said implant is inserted.

Claim 131 (cancelled).

132. (previously presented) The implant of claim 102, wherein each of said opposed portions comprises an interior surface, said interior surfaces being spaced apart to define a hollow interior in communication with said openings.

133. (previously presented) The implant of claim 102, wherein at least a portion of said opposed portions are in a diverging relationship to each other from trailing end to leading end for allowing angulation of the adjacent vertebral bodies relative to each other.

134. (previously presented) The implant of claim 102, wherein at least a portion of said opposed portions are generally in a converging relationship to each other from trailing end to leading end for allowing angulation of the adjacent vertebral bodies relative to each other.

135. (previously presented) The implant of claim 102, further comprising a plurality of openings and passages for retaining fusion promoting substance.

Claim 136 (cancelled).

137. (previously presented) The implant of claim 102, wherein said implant is adapted for insertion from the posterior aspect of the vertebral bodies and said leading end is configured to conform to the anatomic contour of at least a portion of the anterior aspect of the vertebral bodies.

138. (previously presented) The implant of claim 102, wherein said implant is adapted for insertion from the anterior aspect of the vertebral bodies and said leading end is configured to conform to the anatomic contour of at least a portion of the posterior aspect of the vertebral bodies.

139. (previously presented) The implant of claim 102, wherein said implant is adapted for insertion from a first lateral aspect of the vertebral bodies and said leading end is configured to conform to the anatomic contour of at least a portion of a second lateral aspect of the vertebral bodies opposite the first lateral aspect.

140. (previously presented) The implant of claim 102, further in combination with hydroxyapatite.

141. (previously presented) The implant of claim 1, wherein said interior and exterior facing side walls are substantially parallel to one another along a majority of the length of said implant.

142. (previously presented) The implant of claim 1, wherein said interior and exterior facing side walls are generally positioned the same distance from the mid-longitudinal axis of the implant along a substantial portion of the length of said implant.

143. (previously presented) The implant of claim 1, wherein said vertebral body contacting surfaces each have a maximum width transverse to the mid-longitudinal axis of said implant, each of said interior and exterior facing side walls having a maximum thickness transverse to the mid-longitudinal axis of said implant, the maximum thickness of at least one of said side walls being less than the maximum width of at least one of said vertebral body contacting surfaces.

144. (previously presented) The implant of claim 102, wherein at least one of said opposed portions comprises at least a second opening.

145. (previously presented) The implant of claim 102, wherein said interior and exterior facing side walls are substantially parallel to one another along a majority of the length of said implant.

146. (previously presented) The implant of claim 102, wherein said interior and exterior facing side walls are generally positioned the same distance from the mid-longitudinal axis of the implant along a substantial portion of the length of said implant.

147. (currently amended) An artificial interbody spinal implant for insertion at least in part across the surgically corrected height of a disc space between adjacent vertebral bodies of a human spine, the vertebral bodies each having an anterior aspect, a posterior aspect, and an endplate having an apophyseal rim proximate the perimeter of the endplate, said implant comprising:

a leading end for insertion first into the disc space, a trailing end opposite said leading end, and therebetween a length along a mid-longitudinal axis of said implant, said leading end being asymmetrical;

opposed portions between said leading and trailing ends adapted to be placed within the disc space to contact and support the adjacent vertebral bodies, said opposed portions being non-arcuate along at least a portion of the length of said implant, each of said opposed portions having at least one opening therein to permit for the growth of bone from adjacent vertebral body to adjacent vertebral body through said implant, said implant being formed at least in part of a material other than bone, said material comprising at least one of surgical quality titanium and its alloys, cobalt chrome alloy, tantalum, any metal or alloy suitable for the intended purpose, any ceramic material suitable for the intended purpose, and any plastic or composite material suitable for the intended purpose;

an interior facing side wall, an exterior facing side wall opposite said interior side wall, and a width therebetween, <u>said interior and exterior facing side walls extending between said opposed portions,</u> said width of said implant being less than approximately one-half of the maximum width of the adjacent vertebral bodies into which said implant is adapted to be inserted, said interior and exterior side walls being between said opposed portions and said leading and trailing

ends, said leading end including a curved portion extending from a junction of said leading end and said exterior side wall to at least the intersection of said leading end and the mid-longitudinal axis of said implant, said interior facing side wall adapted to be oriented toward another implant when inserted within the disc space, each of said opposed portions having a vertebral body contacting surface between said at least one opening and at least one of said interior facing side wall and said exterior side wall, each of said vertebral body contacting surfaces being adapted to be placed toward one of the adjacent vertebral bodies, said vertebral body contacting portions being at least in part between said interior facing side wall and said exterior side wall, said opposed portions being spaced apart to define a hollow interior in communication with said openings, said exterior facing side wall including a straight portion along the length of said implant; and

said implant having a minimum length as measured from said leading end to said trailing end so that said leading end and said trailing end of said implant are adapted to rest upon portions of the apophyseal rim when implanted, said implant being adapted to be wholly contained within the disc space when implanted.

148. (previously presented) The implant of claim 147, wherein said leading end includes a curve that extends from said exterior facing side wall beyond the mid-longitudinal axis of said implant.

149. (previously presented) The implant of claim 147, further comprising at least one protrusion extending from at least one of said opposed portions for engaging at least one of the adjacent vertebral bodies to maintain said implant within the disc space.

150. (previously presented) The implant of claim 147, further comprising a plurality of surface roughenings for engaging the adjacent vertebral bodies and for maintaining said implant in place, said surface roughenings being present on at least a part of said opposed portions.

151. (previously presented) The implant of claim 147, in combination with a fusion promoting substance.

152. (previously presented) The combination of claim 151, wherein said fusion promoting substance is at least one of bone morphogenetic protein, hydroxyapatite, and genes coding for the production of bone.

153. (previously presented) The implant of claim 147, wherein at least a portion of said implant is bioresorbable.

154. (previously presented) The implant of claim 147, wherein at least a portion of said opposed portions are in a diverging relationship to each other from trailing end to leading end for allowing angulation of the adjacent vertebral bodies relative to each other.

155. (previously presented) The implant of claim 147, wherein at least a portion of said opposed portions are generally in a converging relationship to each other from trailing end to leading end for allowing angulation of the adjacent vertebral bodies relative to each other.

156. (previously presented) The implant of claim 147, wherein at least a portion of said leading end is tapered from opposed portion to opposed portion for facilitating insertion of the implant between the two adjacent vertebral bodies.

157. (previously presented) The implant of claim 147, wherein said opposed portions have a porous surface.

158. (previously presented) The implant of claim 147, wherein said opposed portions have a bone ingrowth surface.

159. (previously presented) The implant of claim 147, wherein said implant is treated with a fusion promoting substance.

160. (previously presented) The implant of claim 159, wherein said fusion promoting substance is bone morphogenetic protein.

161. (previously presented) The implant of claim 147, wherein said opposed portions have at least two openings therein.

162. (previously presented) The implant of claim 147, further comprising a plurality of openings and passages for retaining fusion promoting substance.

163. (previously presented) The implant of claim 147, wherein said implant is adapted for insertion from the posterior aspect of the vertebral bodies and said leading end is configured to conform to the anatomic contour of at least a portion of the anterior aspect of the vertebral bodies.

164. (previously presented) The implant of claim 147, wherein said implant is adapted for insertion from the anterior aspect of the vertebral bodies and said leading end is configured to conform to the anatomic contour of at least a portion of the posterior aspect of the vertebral bodies.

165. (previously presented) The implant of claim 147, wherein said implant is adapted for insertion from a first lateral aspect of the vertebral bodies and said leading end is configured to conform to the anatomic contour of at least a portion of a second lateral aspect of the vertebral bodies opposite the first lateral aspect.

166. (previously presented) The implant of claim 147, wherein said trailing end is generally symmetrical relative to the mid-longitudinal axis.

167. (previously presented) The implant of claim 147, wherein said leading and trailing ends each have a radius of curvature, the radius of curvature of said leading end being different from the radius of curvature of said trailing end.

168. (previously presented) The implant of claim 167, wherein the radius of curvature of said leading end is greater than the radius of curvature of said trailing end.

169. (previously presented) The implant of claim 1, wherein said trailing end is generally symmetrical relative to the mid-longitudinal axis.

170. (previously presented) The implant of claim 1, wherein said leading and trailing ends each have a radius of curvature, the radius of curvature of said leading end being different from the radius of curvature of said trailing end.

171. (previously presented) The implant of claim 170, wherein the radius of curvature of said leading end is greater than the radius of curvature of said trailing end.

172. (previously presented) The implant of claim 102, wherein said trailing end is generally symmetrical relative to the mid-longitudinal axis.

173. (previously presented) The implant of claim 102, wherein said leading and trailing ends each have a radius of curvature, the radius of curvature of said leading end being different from the radius of curvature of said trailing end.

174. (previously presented) The implant of claim 173, wherein the radius of curvature of said leading end is greater than the radius of curvature of said trailing end.